UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P O Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,260	02/06/2006	Alexander Kraus	87209	3060

22242 7590 11/30/2009

FITCH EVEN TABIN & FLANNERY
120 SOUTH LASALLE STREET
SUITE 1600
CHICAGO, IL 60603-3406

EXAMINER	
CHOI, LING SIU	
ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
11/30/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/567,260	KRAUS ET AL.	
	Examiner	Art Unit	
	Ling-Siu Choi	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other. _____.

DETAILED ACTION

1. This Office Action is in response to the Amendment filed 08/20/2009. Claims 13-27 have been added and claims 1-27 are now pending.

Claim Objections

2. Claims 1-27 are objected to because of the following informalities: (A) **Claim 1,** line 14, "Y = 0" is suggested to be changed to --Y= O--; (B) **Claim 2**, line 2, "the aryl radicals R^1 are substituted" is suggested to be changed to --R^1 are the aryl radicals substituted--; (C) **Claim 13**, line 15, "Y = 0" is suggested to be changed to --Y= O--; (D) **Claim 14**, lines 1-2, "the aryl radicals R^1 are substituted" is suggested to be changed to --R^1 are the aryl radicals substituted--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. **The following is a quotation of the second paragraph of 35 U.S.C. 112:**

> **The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

4. Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 34-37, "the CCT dispersant is in an amount effective for providing the suspension with better water reduction capacity than with a non-CCT dispersant used in the same amount and **which** is a comb polymer having the same monomers, the non-CCT dispersant not obtained by a CCT reaction" is not understood. Does it mean that "the CCT dispersant is in an amount effective for providing the suspension with better water reduction capacity than with a non-CCT dispersant used in the same amount and the CCT dispersant is a comb polymer having the same monomers as ones of the non-CCT dispersant not obtained by a CCT reaction"?

Claim 1, line 34, "R^3 and R^5 together form –O-CO-O-" causes indefiniteness. In view of the definitions for R^3 and R^5, it should read "R^3 and R^5 together **optionally** form –O-CO-O".

Claim 5, line 3, the recitation "RCONH-R^9-SO_3H" causes indefiniteness because it depends on claim 1 where R^5 is defined to be SO_3H or CONH-R^9 instead of CONH- R^9-SO_3H;

Claim 13, line 36, "R^3 and R^5 together form –O-CO-O-" causes indefiniteness. In view of the definitions for R^3 and R^5, it should read "R^3 and R^5 together **optionally** form –O-CO-O-".

Claim 17, line 2, the recitation "RCONH-R^9-SO_3H" causes indefiniteness because it depends on claim 1 where R^5 is defined to be SO_3H or CONH-R^9 instead of CONH- R^9-SO_3H.

Claim 25, lines 3-5, "**which** is a comb polymer having the same monomers, the non-CCT dispersant not obtained by a CCT reaction" is not understood. Does it mean that "the CCT dispersant is a comb polymer having the same monomers as ones of the non-CCT dispersant not obtained by a CCT reaction"?

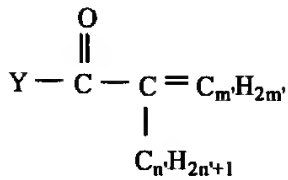
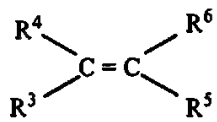
Claims 26-27, lines 4-5, "which is a comb polymer having the same monomers, the non-CCT dispersant not obtained by a CCT reaction" is not understood. Does it mean that "the CCT dispersant is a comb polymer having the same monomers as ones of the non-CCT dispersant not obtained by a CCT reaction"?

Claim Analysis

5. Summary of Claim 1:

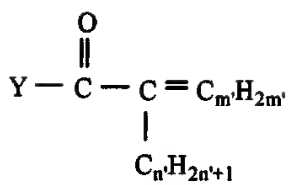
<table>
<tr><td colspan="3">A suspension comprising an aqueous suspension of solids and a CCT dispersant comprising random comb polymers obtained by free-radical copolymerization according to catalytic chain transfer method (CCT) of</td></tr>
<tr><td>A</td><td colspan="2">vinylic poly(alkylene oxide) compound (A) of the general formula

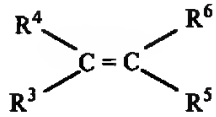
R^1-O-(-$C_mH_{2m}O$-)$_{n-1}$-C_mH_{2m}-Z</td></tr>
<tr><td></td><td>R^1</td><td>hydrogen, a C $_{1-20}$-alkyl radical, a cycloaliphatic C $_{5-20}$-cycloalkyl radical, a substituted or unsubstituted C $_{6-14}$-aryl radical,</td></tr>
<tr><td></td><td>m</td><td>2 - 4,</td></tr>
<tr><td></td><td>n</td><td>1 - 250,</td></tr>
</table>

	Z		
		Y	O or NR^2,
		R^2	hydrogen, a C $_{1-12}$-alkyl radical, a C $_{6-14}$-aryl radical, $-C_mH_{2m}-(O-C_m H_{2m})_{n-1}OR^1$,
		m'	1 – 4
		n'	0 - 2,
B	<u>an ethylenically unsaturated monomer compound (B)</u> of the general formula 		
	R^3	H, CH_3, COOH or a salt thereof, $COOR^7$ or $CONR^7R^7$,	
	R^4	H, a substituted or unsubstituted C $_{6-14}$-aryl radical,	
	R^5	H, CH_3, COOH or a salt thereof, $COOR^7$, $CONR^7R^7$, a substituted or unsubstituted aryl radical or OR^8, PO_3H_2, SO_3H, CONH-R_9,	
	R^6	H, CH_3 or CH_3COOR_7,	
	R^7	H, C $_{1-12}$-alkyl, C $_{1-12}$-hydroxyalkyl, C $_{1-12}$-alkylphosphate or phosphonate or a salt thereof, C $_{1-12}$--alkylsulfate or -sulfonate or a salt thereof, $C_mH_{2m}-(-O-C_mH_{2m}-)_{n-1}-OR^1$,	
	R^8	acetyl and	
	R^9	C $_{1-12}$-alkylphosphate or-phosphonate or a salt thereof, C $_{1-12}$-alkylsulfate or -sulfonate or a salt thereof,	
	R^3 and R^5 together form -O-CO-O-,		
the CCT dispersant is in an amount effective for providing the suspension with better water reduction capacity than with a non-			

CCT dispersant used in the same amount and which is a comb polymer having the same monomers, the non-CCT dispersant not obtained by a CCT reaction.

Summary of Claim 13:

A method for making an aqueous suspension comprising solids and a CCT dispersant, the method comprising mixing particulate solids, water and a CCT dispersant,			
the CCT dispersant comprising random comb polymers obtained by free-radical copolymerization according to catalytic chain transfer method (CCT) of			
A	vinylic poly(alkylene oxide) compound (A) of the general formula $R^1\text{-}O\text{-}(C_mH_{2m}O)_{n-1}\text{-}C_mH_{2m}\text{-}Z$		
	R^1	hydrogen, a $C_{1\text{-}20}$-alkyl radical, a cycloaliphatic $C_{5\text{-}20}$-cycloalkyl radical, a substituted or unsubstituted $C_{6\text{-}14}$-aryl radical,	
	m	2 - 4,	
	n	1 - 250,	
	Z		
		Y	O or NR^2,
		R^2	hydrogen, a $C_{1\text{-}12}$-alkyl radical, a $C_{6\text{-}14}$-aryl radical, $-C_mH_{2m}\text{-}(O\text{-}C_m H_{2m})_{n-1}OR^1$,
		m'	1 – 4
		n'	0 - 2,
B	an ethylenically unsaturated monomer compound (B) of the general formula		

		
	R^3	H, CH_3, COOH or a salt thereof, $COOR^7$ or $CONR^7R^7$,
	R^4	H, a substituted or unsubstituted C $_{6-14}$-aryl radical,
	R^5	H, CH_3, COOH or a salt thereof, $COOR^7$, $CONR^7R^7$, a substituted or unsubstituted aryl radical or OR^8, PO_3H_2, SO_3H, CONH-R_9,
	R^6	H, CH_3 or CH_3COOR_7,
	R^7	H, C $_{1-12}$-alkyl, C $_{1-12}$-hydroxyalkyl, C $_{1-12}$-alkylphosphate or phosphonate or a salt thereof, C $_{1-12}$--alkylsulfate or -sulfonate or a salt thereof, C_mH_{2m}-(-O - C_mH_{2m}-)$_{n-1}$-OR^1 ,
	R^8	acetyl and
	R^9	C $_{1-12}$-alkylphosphate or-phosphonate or a salt thereof, C $_{1-12}$-alkylsulfate or -sulfonate or a salt thereof,
	R^3 and R^5 together form -O-CO-O-.	

Claim Rejections - 35 USC § 102

6. **The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:**

> **A person shall be entitled to a patent unless –**
>
> **(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.**

Claim Rejections - 35 USC § 103

7. **The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

> **(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.**

8. Claims 1-12 and 25-27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ma et al. (US 6,117,921).

Ma et al. disclose a graft copolymer dispersant and a method to make it, the dispersant having a backbone portion and at least one sidechain portion, wherein (A) both portions are prepared from ethylenically unsaturated monomers; (B) the sidearm portion is hydrophilic and the backbone portion is hydrophobic: the sidearm portion being derived from a non-ionic hydrophilic or water soluble monomer having the formula

$$CH_2=C(R_3)[C(O)OX_n\ (\mathbf{CH_2\ CH_2\ O})_m]\text{-}R_4$$

wherein n = 0 or 1; m = 1 to 100; X = an alkyl, aryl, or alkylaryl diradical $C_{1\text{-}9}$ connecting group; R_3 = H or CH_3 ; and R_4 = [H and $C_{1\text{-}4}$ alkyl groups]; the hydrophobic portion being prepared from at least one monomer having the following formulae:

$$CH_2= C(R_1)\ C(O)\ X(R_2)R_3$$

$$CH_2= CHO\ C(O)R_4$$

R_1 = [H and CH_3] ; X =[N and O]; when X = N, R_2 and R_3 = [H, substituted alkyl, substituted aryl, substituted alkylaryl, unsubstituted alkyl, unsubstituted aryl and unsubstituted alkylaryl groups] provided that either R_2 or R_3 contains at least one aryl or

alkylaryl group; when X = O, R_2 does not exist and R_3 = [substituted aryl, substituted alkylaryl groups, unsubstituted aryl and unsubstituted alkylaryl groups]; and R_4 = [substituted aryl, substituted alkylaryl groups, unsubstituted aryl and unsubstituted alkylaryl groups] (claims 1-2 and 13). Ma et al. further disclose that diaquabis(borondifluorodiphenyl glyoximato) cobaltate (II), a catalytic chain transfer agent, is used in polymerizing the non-ionic hydrophilic monomer and the hydrophobic monomer, (col. 6, lines 48-67; Example 1). It is noted that Ma et al. are silent on the water reduction capacity. In view of the suspension made by the substantially identical method and from the substantially identical reactants, the suspension would possess the claimed water reduction capacity. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. **In re Best**, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); **In re Fitzgerald**, 205 USPQ 594 (CCPA 1980).

9. Claims 13-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Ma et al. (US 6,117,921).

Ma et al. disclose and a method to make a suspension comprising a graft copolymer dispersant, the dispersant having a backbone portion and at least one sidechain portion, wherein (A) both portions are prepared from ethylenically unsaturated monomers; (B) the sidearm portion is hydrophilic and the backbone portion is hydrophobic: the sidearm portion being derived from a non-ionic hydrophilic or water soluble monomer having the formula

$$CH_2=C(R_3)[C(O)OX_n\ (CH_2\ CH_2\ O)_m]\text{-}R_4$$

wherein n = 0 or 1; m = 1 to 100; X = an alkyl, aryl, or alkylaryl diradical $C_{1\text{-}9}$ connecting group; R_3 = H or CH_3 ; and R_4 = [H and $C_{1\text{-}4}$ alkyl groups]; the hydrophobic portion being prepared from at least one monomer having the following formulae:

$$CH_2= C(R_1)\ C(O)\ X(R_2)R_3$$

$$CH_2= CHO\ C(O)R_4$$

R_1 = [H and CH_3] ; X =[N and O]; when X = N, R_2 and R_3 = [H, substituted alkyl, substituted aryl, substituted alkylaryl, unsubstituted alkyl, unsubstituted aryl and unsubstituted alkylaryl groups] provided that either R_2 or R_3 contains at least one aryl or alkylaryl group; when X = O, R_2 does not exist and R_3 = [substituted aryl, substituted alkylaryl groups, unsubstituted aryl and unsubstituted alkylaryl groups]; and R_4 = [substituted aryl, substituted alkylaryl groups, unsubstituted aryl and unsubstituted alkylaryl groups] (claims 1-2 and 13). Ma et al. further disclose that diaquabis(borondifluorodiphenyl glyoximato) cobaltate (II), a catalytic chain transfer agent, is used in polymerizing the non-ionic hydrophilic monomer and the hydrophobic monomer, (col. 6, lines 48-67; Example 1). Thus, the present claims are anticipated by the disclosure of Ma et al.

Response to Arguments

10. Applicant's arguments filed 08/20/2009 have been fully considered.

In view of the Amendment, the claim rejections as being anticipated by Kroner et al. (US 6,756,471 B1), Satoh et al. (US 2001/0012864 A1), and Naramoto et al. (US 6,296,698 B1) are withdrawn because Kroner et al., Satoh et al., and Naramoto et al. do not teach or fairly suggest the claimed suspension or method to make it, wherein the suspension comprises a dispersant made by catalytic chain transfer method (CCT) and has a specific water reduction capacity compared with the corresponding non-CCT dispersant.

Referring to Ma et al. ((US 6,117,921), "....the comb polymer according to Ma et al. then is further reacted to give a graft polymer..."

In view of the method and reactants being substantially identical to the ones disclosed in the present claims, the resulting graft copolymer would be random comb polymer [comb polymer is a subset of graft polymer].

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Ling-Siu Choi/

Primary Examiner, Art Unit 1796

November 21, 2009